

REMARKS

The Office Action mailed September 26, 2005 has been reviewed and carefully considered. Claims 1-21 remain pending, the independent claims remaining 1, 9, 15 and 21. Claims 7, 11 and 19 are amended. None of the independent claims is amended. Reconsideration of the above-identified application in view of the following remarks is respectfully requested.

Claims 1-21 stand rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 5,827,175 to Tanaka in view of U.S. Patent No. 6,524,251 to Rabiner et al. ("Rabiner").

The present claim 1 recites:

An endoscopic imaging apparatus comprising:
an endoscope including a distal end;
at least one ultrasound transducer contained within said distal end; and
a covering fabricated from an electrically insulating material having a Thermal Conductance greater than 1 W/M-°K overlaying at least a portion of said distal end

Tanaka relates to an endoscope whose probe end cap is not specified. The cap is disclosed as having appropriate acoustical properties. Tanaka is silent as to "electrically insulating" and "having a Thermal Conductance greater than 1 W/M-°K." The Tanaka end cap transmits ultrasound in its axial direction, the echoes being received in observation windows 7, 8. The Tanaka probe 11 is separably attached to a holder member 60 made of a resilient material like rubber. The attachment is by means of a flexible shaft having a sheath made of soft, flexible synthetic resin material. Inside the probe head 11a is a transducer 21 connected to coaxial cables.

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Rabiner is directed to a sheath that radially surrounds an ultrasound probe tip, and which is configured for acoustical dampening so that cavitation can be focused to that part of the body tissue to be destroyed. More particularly, a radial surface of the sheath has an opening through which ultrasound energy leaves (FIG. 8). The irregularly-shaped sheath is detachable. It may be formed of a ceramic, to allow the sheath to be placed in an autoclave for sterilization.

The Office Action seems to suggest that it would have been obvious implement the Tanaka end cap 20 as a ceramic material, or to provide the cap with a ceramic sheath, in view of Rabiner. The instant applicant traverses this suggestion by the Office Action.

The Office Action cites, as motivation, "necessary acoustic properties."

However, the Rabiner acoustical dampening, which involves "absorbing, containing or dissipating," operates of cavitation energy. Tanaka does not involve cavitation energy. Moreover, it is unclear how such acoustical dampening would not impede Tanaka imaging. Tanaka teaches away from degrading its imaging (col. 2, line 10: "clearer ultrasound").

The Office Action also cites, as motivation, the Rabiner feature of a part being removable for sterilization by autoclaving.

However, due at least to the Tanaka flexible components, including the coaxial cable, it is unclear what proper role autoclaving would have for the Tanaka probe.

Notably, the Tanaka probe head has a transducer that produces imaging energy that is applied longitudinally; whereas, the Rabiner ablation probe's ceramic sheath receives cavitation energy and redirects it radially outward.

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For at least the above reasons, claim 1 is not rendered obvious by the combination of references the Office Action proposes.

Claim 9 recites:

An apparatus for dissipating thermal energy produced by an endoscopic imaging apparatus, wherein the apparatus is configured and dimensioned to mate with a distal end of said imaging apparatus for dissipating thermal energy produced at said distal end, said apparatus fabricated from an electrically insulating material having a Thermal Conductance greater than 1 W/M-°K

Claim 15 recites:

A method for scanning a patient's heart using a TEE probe comprising of the steps of:
providing an endoscope having a distal end having a portion thereof fabricated from an electrically insulating material having a Thermal Conductance greater than 1 W/M-°K; and guiding the endoscope including a distal end

Claim 21 recites:

A device for passively dissipating thermal energy produced by at least one transducer located at a distal end of an endoscopic imaging apparatus, wherein said device is configured and dimensioned to encase the at least one transducer, said device having at least the following properties:
electrically insulating;
a Thermal Conductance greater than 1 W/M-°K; and
substantially non-reactivity in the presence of bodily fluids

Claims 9, 15 and 21, based on the above-quoted language from these claims, are deemed to be patentable over the prior art of record for at least the same reasons set forth above with regard to claim 1.

Claims 7, 11 and 19 depend from respective based claims that have been shown to be patentable over the prior art of record, and are likewise patentable.

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It is further noted, regarding claims 7, 11 and 19, that, despite the suggestion in the Office Action to the contrary, it is unclear by what reasoning Rabiner can fairly be said to disclose or suggest the use of "Alumina-based ceramic."

As another example with respect to the dependent claims, for claims 8, 14 and 20, the Office Action cites to the applicant's specification, rather than to the prior art. Disclosure or suggestion of these claims is not found in the prior art of record, alone or in combination.

Reconsideration and withdrawal of the rejections applied to the claims in the instant patent application is respectfully requested.

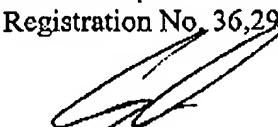
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For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

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